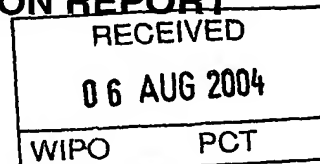


PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)





Applicant's or agent's file reference PU4963WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 03/39975	International filing date (day/month/year) 12.12.2003	Priority date (day/month/year) 13.12.2002
International Patent Classification (IPC) or both national classification and IPC C07D451/04		
Applicant SMITHKLINE BEECHAM CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 09.06.2004	Date of completion of this report 05.08.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Seelmann, I Telephone No. +49 89 2399-7480 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/39975**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-82 as originally filed

Claims, Numbers

1-39 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
 - ☐ the language of publication of the international application (under Rule 48.3(b)).
 - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:
- ☐ contained in the international application in written form.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority in written form.
 - ☐ furnished subsequently to this Authority in computer readable form.
 - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.
4. The amendments have resulted in the cancellation of:
- ☐ the description, pages:
 - ☐ the claims, Nos.:
 - ☐ the drawings, sheets:
5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/39975**

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1-21,23-39 (partially)

because:

☒ the said international application, or the said claims Nos. 23-27,37-39 (industrial applicability) relate to the following subject matter which does not require an international preliminary examination (specify):

see separate sheet

☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for the said claims Nos. 1-39 (partially)

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the Standard.

☐ the computer readable form has not been furnished or does not comply with the Standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	22
	No: Claims	1-21,23-39
Inventive step (IS)	Yes: Claims	22
	No: Claims	1-21,23-39
Industrial applicability (IA)	Yes: Claims	1-22,28-36
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US 03/39975

Re Item III

The present claims relate to an extremely large number of possible compounds. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to carbocyclic, bicyclic compounds. The following definitions according to claim 1 were searched: All Z = carbon, B is a 4-7 membered saturated carbocyclic ring and R10 = R7 (two R10 cannot form a ring). All compounds of claim 22 are encompassed by the scope of the search.

Claims 23-27 and 37-39 relate to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of these claims (Article 34(4)(a)(I) PCT).

Re Item V

1. PRIOR ART

Reference is made to the following documents:

D1: US 6 096 780

2. NOVELTY

The essential structural difference between the claimed compounds and those of D1 resides in the attachment of 2 substituents to the same carbon atom of a bicyclic ring system, wherein at least one of the two substituents comprises a N containing heterocycle. The subject-matter of the claims is considered to be novel vis-a-vis D1, however, due to the incomplete search the requirements of Article 33(2) PCT cannot be considered as met. Only claim 22 can be considered to meet the requirements of Article 33(2) PCT.

3. INVENTIVE STEP

The subject-matter of the claims cannot be considered as involving an inventive step (Article 33(3) PCT).

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1. It discloses benzocyclohepten derivatives with CCR5 activity for the use as agents against HIV. The structural difference to the present compounds is as outlined above. The problem to be solved by the present invention is seen in the provision of further compounds with CCR5 activity. The prior art D1 give no information, which would motivate a man skilled in the art to arrive at the present invention.

However, it is only convincingly shown that some of the compounds according to claim 1 do actually show the alleged properties. In other words, further definitions as described in claim 1 cannot be considered as a reasonable generalisation of the examples. Several expressions are not regarded as obvious modifications or equivalents of the examples which have been given in the description. The breadth of the claims should be such that it can be assumed that all the comprised possibilities actually solve the problem underlying the invention on which an inventive step could be based. If the compounds of the Examples of the application solve this problem it is apparent that they all are benzocycloalkanes. If this definition is essential to the specific activity profile on which the acknowledgement of an inventive step is based claim 1 should be restricted accordingly.

The term derivatives is considered as unclear, it should be removed.